

## Central Valley Flood Protection Plan

# Round 1 Management Action Workshops

## Draft Initial Management Actions

A management action is a specific structural or nonstructural strategy, action, or tactic that contributes to the Central Valley Flood Protection Plan (CVFPP) goals and addresses identified flood management problems in the Systemwide Planning Area, including any identified deficiencies in the State Plan of Flood Control (refer to *CVFPP Interim Progress Summary No. 1*). Management actions may range from potential policy or institutional changes, to recommendations for operational and physical changes to the flood management system. Management actions may address one or more CVFPP goals and are the “building blocks” for regional solutions and eventually systemwide solutions.

An initial set of management actions was developed by consolidating a large number of compiled actions and recommendations from published studies and reports, and input from Regional Conditions and Topic Work Groups during CVFPP Phase 1 activities. DWR subject-matter experts provided a preliminary evaluation of the environmental, economic, technical, and social consideration of the identified management actions. Each management action was evaluated against a uniform set of criteria to allow for a consistent comparative analysis.

Management Actions Workshops will refine the initial management actions and develop additional actions to augment this initial set of management actions. For information on Phase 2 Workshops, refer to *Attendee’s Guide to Phase 2 Workshops* available at [www.water.ca.gov/cvfmp/](http://www.water.ca.gov/cvfmp/).

Each management action is evaluated using the *Management Actions Evaluation Form*. For description of the form sections refer to the *Reader’s Guide to the Management Actions Evaluation Form* available at [www.water.ca.gov/cvfmp/](http://www.water.ca.gov/cvfmp/).

To provide detailed written comments on the management action description and evaluation, use the fillable PDF *Comments Form* available at [www.water.ca.gov/cvfmp/](http://www.water.ca.gov/cvfmp/).

## Draft Finance & Revenue Management Actions

ID	Management Actions Title
MA-059	Increase funding for flood management projects by leveraging Federal funding.
MA-060	Leverage funding from multiple projects to improve cost- effectiveness and efficiency of flood management projects.
MA-061	Create a bank or other financial mechanism that pre-funds both O&M and mitigation activities.
MA-062	Explore alternative funding for O&M and new flood management improvements.
MA-082	Compensate rural areas for accepting lesser flood protection than urban areas.

**DRAFT Management Action Evaluation****Management Action Title:**

MA-059

Increase funding for flood management projects by leveraging Federal funding.

**Description:***Problem:*

Current federal, State, and local funding mechanisms are not adequate to sustain effective flood management.

*Desired Outcome:*

Maximize available funding for flood management projects.

*Methodology:*

Projects could be planned and developed specifically to leverage funding from multiple federal sources, including the Federal Emergency Management Agency (FEMA), National Flood Insurance Program (NFIP), Natural Resource Conservation Service (NRCS), Fish and Wildlife Service (USFWS), and the USACE. This might include development of multi-benefit projects that leverage funding for a variety of federal project purposes (flood risk reduction, environmental restoration, hazard mitigation, water supply, water quality, others), or development of projects that incorporate both structural and non-structural actions addressing flood risk reduction as well as mitigation once flooding occurs.

**CVFPP Goals***Contributes Significantly to:*

Improve Institutional Support

**Potentially Contributes to (Check all that apply):**

- |  |   |
|--|---|
| <input type="checkbox"/> Improve Flood Risk Management     | <input checked="" type="checkbox"/> Improve Institutional Support |
| <input type="checkbox"/> Improve Operation and Maintenance | <input type="checkbox"/> Promote Multi-Benefit Projects           |
| <input type="checkbox"/> Promote Ecosystem Functions       |   |

**Recommendations (Retained/Not Retained/Requires Further Evaluation):**

Retained.

**Advantages:**

- Low cost to implement for the potential benefits gained.
- More federal funding could reduce the impact on level of State funding necessary to carry out the necessary flood projects.

**Disadvantages:**

- Federal cost sharing percentage for flood management has reduced over the past decade.
- May require changes to federal cost sharing laws or appropriations to realize significant benefits.

**Economic Considerations:***Capital Cost? (High, Medium, Low)*

Low to no cost to implement

*Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)*

O&amp;M costs would not change

*Potential for Cost-Sharing?*

Federal cost sharing has been reduced from 75 to 65% in recent years; even if projects are formulated specifically to promote federal interests, federal appropriations may remain low

*Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)*

No direct effects on emergency response and recovery

*Flood fighting? (Increase, Decrease, or No Significant Change)*

No direct effects on flood fighting

*Effect on Damage to Critical Public Infrastructure?*

No direct effects, but protection of public infrastructure could be improved over the long-term if more funding is made available to improve the flood management system. Faster improvement of flood management facilities would reduce the infrastructure damage.

*Effect on Floodplain and Economic Development?*

No direct effect, but improvements to the flood management system and level of protection provided could encourage additional floodplain development

*Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)*

No direct effects, provided flood management improvement projects do not expand State flood responsibilities

**Environmental Considerations:***Rehabilitate key physical processes and ecological functions?*

None

*Adverse Environmental Impact?*

None

*Permitting Considerations?*

None

*Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?*

None

**Social Considerations:***Public Safety?*

No direct effects, but increased funding for improvements would result in a flood management system that provides greater public safety

*Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?*

No direct effects

*Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?*

Potential for broad public support; may require changes to laws or regulations at a Federal level (cost sharing and/or appropriations); may require new Federal programs

**Technical Considerations:***Redirected Hydraulic Impacts?*

None

*Residual Risk?*

No direct effect on residual risk

*Climate Change Adaptability:*

No direct effects

**Urban, Small Community, and Non-Urban Considerations:**

No specific considerations identified

**Regional Applicability:**

Applicable to all regions.

**Integration with Other Programs:**

Federal Grants Technical Support (LRFMO), Flood Projects Office (FPO)

**References:**

RCR;

**DRAFT Management Action Evaluation****Management Action Title:**

MA-060

Leverage funding from multiple projects to improve cost- effectiveness and efficiency of flood management projects.

**Description:***Problem:*

There are often numerous projects occurring simultaneously in the same region, all of which conduct planning, design, permitting, and mitigation activities independent of each other. This could result in duplicate efforts and the potential for missed opportunities to provide mutual benefits.

*Desired Outcome:*

Improve the cost effectiveness and financial feasibility of individual flood management projects by consolidating projects on a regional or systemwide level.

*Methodology:*

Align new infrastructure projects, such as setback levees, with other existing or planned infrastructure projects (such as roads or highways) to leverage funding from multiple agencies, increase construction and maintenance efficiency, combine mitigation efforts, and accomplish multiple objectives. Consolidating and coordinating planning and design activities could increase cost effectiveness, highlight opportunities to provide mutual benefits or multiple benefits beyond those planned as part of individual projects, improve the effectiveness and sustainability of mitigation activities, and leverage funding and implementation support from multiple sources.

**CVFPP Goals***Contributes Significantly to:*

Improve Institutional Support

**Potentially Contributes to (Check all that apply):**

- |  |  |
|--|--|
| <input type="checkbox"/> Improve Flood Risk Management     | <input checked="" type="checkbox"/> Improve Institutional Support  |
| <input type="checkbox"/> Improve Operation and Maintenance | <input checked="" type="checkbox"/> Promote Multi-Benefit Projects |
| <input type="checkbox"/> Promote Ecosystem Functions       |  |

**Recommendations (Retained/Not Retained/Requires Further Evaluation):**

Retain for further evaluation

**Advantages:**

- Low cost to implement for the potential benefits gained like shared data and information and eliminating duplications.
- Potential to improve cost effectiveness of improvements.

**Disadvantages:**

- May require coordination across multiple agencies and jurisdictions.

**Economic Considerations:***Capital Cost? (High, Medium, Low)*

Low cost to implement.

*Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)*

O&amp;M cost would not change.

*Potential for Cost-Sharing?*

Projects that provide regional benefits and address the interests of multiple partners may be more cost-effective and successful in generating funding from a variety of sources. Utilizing all various source of data and information could reduce the cost of a study or project.

*Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)*

No direct effects on emergency response and recovery.

*Flood fighting? (Increase, Decrease, or No Significant Change)*

No direct effects on flood fighting.

*Effect on Damage to Critical Public Infrastructure?*

No direct effects on public infrastructure; however, flood management projects that incorporate improvements to transportation or other public infrastructure may provide increased funding opportunities.

*Effect on Floodplain and Economic Development?*

No direct effect, but improvements to the flood management system and level of protection provided could encourage additional floodplain development.

*Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)*

No direct effects.

**Environmental Considerations:***Rehabilitate key physical processes and ecological functions?*

Key physical processes and ecosystem functions could be rehabilitated by combining funding requests of ecosystem restoration projects with flood management projects, increasing the likelihood for funding of both.

*Adverse Environmental Impact?*

None

*Permitting Considerations?*

None

*Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?*

None

**Social Considerations:***Public Safety?*

No direct effects, but increased funding for improvements would result in a flood management system that provides greater public safety.

*Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?*

No direct effects.

*Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?*

Potential for broad public support; would require increased coordination at State, federal, and regional levels.

**Technical Considerations:***Redirected Hydraulic Impacts?*

None

*Residual Risk?*

No direct effect on residual risk.

*Climate Change Adaptability:*

None

**Urban, Small Community, and Non-Urban Considerations:**

May provide a means for small communities or rural areas that are unable to fund or justify projects on their own, to receive flood benefits as part of larger, regional projects.

**Regional Applicability:**

All regions

**Integration with Other Programs:**

Flood Projects Office (FPO).

**References:**

Environmental Sustainability Summary; Framework for SAFCA's Participation in Formulating the CVFPP: Information Item;

**DRAFT Management Action Evaluation****Management Action Title:**

MA-061

Create a bank or other financial mechanism that pre-funds both O&amp;M and mitigation activities.

**Description:***Problem:*

Lack of funding can curtail effective environmental mitigation for routine operation and maintenance (O&M) of the flood management system. One view holds that the current process for obtaining permits and mitigating potential O&M impacts can exceed the budgets and resources of some levee maintaining agencies (LMA). Most LMAs have limited funding sources and some have expressed that they are spending an increasingly larger portion of their operating budget and time obtaining permits, often involving coordination with multiple agencies, to perform required maintenance activities. Others contend that traditional O&M funding mechanisms were established during a time when maintenance activities were less sensitive to environmental impacts and did not consider the costs associated with O&M today. The concept of sustainable and equitable funding for operating and maintaining the flood protection system in perpetuity is very important. Currently there are many shapes and sizes of levee maintaining agencies. Each entity has its own challenges in obtaining funding.

*Desired Outcome:*

Improve the efficiency and cost-effectiveness of flood system O&amp;M and associated mitigation.

*Methodology:*

When cost estimating is completed for a repair project or ongoing O&M activity, sufficient funds should be set aside for environmental mitigation. Funding for mitigation and O&M activities could be combined if planned in the early stages of a project. Creating a bank or other financial mechanism that pre-funds both O&M and mitigation would help improve the efficiency and cost effectiveness of both activities, and make sure that lack of funding does not hamper achievement of mitigation goals.

**CVFPP Goals***Contributes Significantly to:*

Improve Institutional Support

**Potentially Contributes to (Check all that apply):**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Improve Flood Risk Management     | <input checked="" type="checkbox"/> Improve Institutional Support |
| <input checked="" type="checkbox"/> Improve Operation and Maintenance | <input type="checkbox"/> Promote Multi-Benefit Projects           |
| <input type="checkbox"/> Promote Ecosystem Functions                  |   |

**Recommendations (Retained/Not Retained/Requires Further Evaluation):**

Retained; requires further investigation

**Advantages:**

- Low cost to implement and maintain over time.
- Potential long-term benefits to both flood management and environmental sustainability.

**Disadvantages:**

- May be difficult to delineate jurisdictional responsibilities and identify appropriate institution to manage the funding bank.
- Funding bank may not be sustainable without changes to LMA revenue generation.

**Economic Considerations:***Capital Cost? (High, Medium, Low)*

Low initial cost to implement

*Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)*

Could potentially reduce annual O&amp;M costs by improving efficiency

*Potential for Cost-Sharing?*

Potential for cost-sharing via federal funding or State grant funds

*Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)*

Improving O&amp;M could contribute to reducing emergency response and recovery costs

*Flood fighting? (Increase, Decrease, or No Significant Change)*

Improving O&amp;M could contribute to reducing flood fighting

*Effect on Damage to Critical Public Infrastructure?*

No direct effects on public infrastructure

*Effect on Floodplain and Economic Development?*

No direct effect

*Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)*

Potential to reduce State flood responsibility by improving the cost effectiveness of O&amp;M

**Environmental Considerations:***Rehabilitate key physical processes and ecological functions?*

Improving funding mechanisms for mitigation could improve the cost-effectiveness of mitigation activities throughout the flood management system.

*Adverse Environmental Impact?*

None

*Permitting Considerations?*

None

*Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?*

High potential to reduce conflicts between O&amp;M and environmental values

**Social Considerations:***Public Safety?*

No direct effects, but improving O&amp;M could contribute to improving public safety

*Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?*

None

*Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?*

Jurisdictional and institutional roles and responsibilities would need to be established; appropriate management and oversight for the funding bank would need to be identified; may require changes to existing laws or regulations governing funding for O&amp;M and other flood management activities

**Technical Considerations:***Redirected Hydraulic Impacts?*

None

*Residual Risk?*

No direct effects on residual risk

*Climate Change Adaptability:*

Improving the effectiveness and efficiency of mitigation for O&amp;M activities could improve overall environmental sustainability

and resilience under altered climate conditions

**Urban, Small Community, and Non-Urban Considerations:**

No specific considerations identified

**Regional Applicability:**

Applicable to all regions.

**Integration with Other Programs:**

**References:**

CCVFCA White Paper: Flood Protection and Risk Management in the Sacramento Valley, 2008, First Step White Paper.

DRAFT Management Action Evaluation

Management Action Title:

MA-062

Explore alternative funding for O&M and new flood management improvements.

Description:

Problem:

Current State and local funding mechanisms are not sufficient in many cases to adequately sustain effective flood management. Investment in flood management has declined in recent years at all levels of government. Public funds available through various State grant, loan, and bond programs have helped bridge funding gaps for many local improvement projects. However, funding for these State programs has varied over time and is limited by budget constraints and political subjectivity. Federal cost sharing for flood management projects dropped from 75 percent to 65 percent in recent years. Further, local entities are often responsible for funding large portions of projects that provide significant regional or statewide benefits (economic, social, cultural benefits).

Desired Outcome:

Develop sustainable funding for flood system O&M and new flood management construction.

Methodology:

There are many opportunities for funding flood management actions and improvements outside of traditional taxes, bond funding, and grants. Alternate sources of funding should be considered for flood project implementation, including non-governmental organizations (NGO), local or regional funding groups, or recreation fees. For example, there may be opportunities to collect fees from areas that share in the regional or statewide benefits provided by a robust flood management system but do not directly receive flood protection.

CVFPP Goals

Contributes Significantly to:

Improve Institutional Support

Potentially Contributes to (Check all that apply):

- ☒ Improve Flood Risk Management
- ☒ Improve Institutional Support
- ☒ Improve Operation and Maintenance
- ☐ Promote Multi-Benefit Projects
- ☐ Promote Ecosystem Functions

Recommendations (Retained/Not Retained/Requires Further Evaluation):

Retained, requires further investigation

Advantages:

- Sustainable funding would provide real and lasting benefits to all aspects of flood management

Disadvantages:

- May be difficult to change laws or regulations governing revenue generation.
- Sustainable funding is a significant issue now and will continue to be so into the future.

Economic Considerations:

Capital Cost? (High, Medium, Low)

Low initial cost to implement

Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)

O&M costs would not change

Potential for Cost-Sharing?

New or improved cost sharing mechanisms could be incorporated into this management action

*Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)*

Improving O&amp;M could contribute to reducing emergency response and recovery costs

*Flood fighting? (Increase, Decrease, or No Significant Change)*

No direct effects; improving O&amp;M could improve the reliability of the flood management system, indirectly reducing flood fighting

*Effect on Damage to Critical Public Infrastructure?*

No direct effects on public infrastructure

*Effect on Floodplain and Economic Development?*

No direct effect

*Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)*

Potential to reduce State flood responsibility by improving the cost effectiveness of O&amp;M

**Environmental Considerations:***Rehabilitate key physical processes and ecological functions?*

None

*Adverse Environmental Impact?*

None

*Permitting Considerations?*

None

*Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?*

High potential to reduce conflicts between O&amp;M and environmental values

**Social Considerations:***Public Safety?*

No direct effects, but improving O&amp;M could contribute to improving public safety

*Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?*

None

*Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?*

Jurisdictional and institutional roles and responsibilities would need to be established, depending on the mechanism; may require changes to existing laws or regulations governing funding and revenue generation for O&amp;M and other flood management activities

**Technical Considerations:***Redirected Hydraulic Impacts?*

None

*Residual Risk?*

No direct effects on residual risk

*Climate Change Adaptability:*

No direct effects

**Urban, Small Community, and Non-Urban Considerations:**

No specific considerations identified

**Regional Applicability:**

Applicable to all regions.

**Integration with Other Programs:**

**References:**

Environmental Sustainability Summary; RCR; California Floodplain Management Task Force, 2002, Final Recommendations Report

**DRAFT Management Action Evaluation****Management Action Title:**

MA-082

Compensate rural areas for accepting lesser flood protection than urban areas.

**Description:***Problem:*

Many rural and agricultural communities are concerned that improvements to urban flood protection over the past few decades have already resulted in “tiered” flood protection levels, or have come at the expense of rural flood protection. The agricultural community asserts that relatively lower flood protection levels in rural and agricultural areas could benefit urban residents to the detriment of the economic fitness and viability of these rural communities. Requirements for increased flood protection in urban and urbanizing areas raise concerns that rural communities could potentially be asked to further sacrifice their lands and their livelihoods in the process of improving urban flood protection. At the same time, mechanisms are needed to help rural communities recover from floods and maintain agricultural viability.

**Desired Outcome:**

Create economic incentives for rural areas to accommodate floods in order to protect urban areas.

*Methodology:*

Develop funding mechanisms for rural areas to address the challenges tied to accepting or assuming comparatively lower levels of flood protection than urban and urbanizing areas. Reliable funding is essential for agricultural communities and areas to develop and implement flood management and recovery plans, store equipment, train community members in flood emergencies and flood fighting, and conduct levee maintenance and repairs. Such programs could provide benefits to both urban areas that are required to provide higher levels of flood protection, as well as rural areas that struggle to maintain existing flood management facilities and justify the costs for improvements. Federal programs providing assistance to farmers and farm businesses should also be closely looked at to eliminate duplication of government assistance.

**CVFPP Goals***Contributes Significantly to:*

Improve Institutional Support

**Potentially Contributes to (Check all that apply):**

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Improve Flood Risk Management | <input type="checkbox"/> Improve Institutional Support  |
| <input type="checkbox"/> Improve Operation and Maintenance        | <input type="checkbox"/> Promote Multi-Benefit Projects |
| <input checked="" type="checkbox"/> Promote Ecosystem Functions   |   |

**Recommendations (Retained/Not Retained/Requires Further Evaluation):**

Retain for further evaluation

**Advantages:**

- Low cost to implement initially (mechanism or program)
- Potential for significant long-term benefits (promotes sustainable flood management).
- Could promote agricultural stewardship and sustainability.
- Increase level of post disaster State funding.

**Disadvantages:**

- Sustainable funding source would need to be identified
- Land owners may not participate in a voluntary program
- Rural areas will have less flood protection than urban areas.

**Economic Considerations:***Capital Cost? (High, Medium, Low)*

Low capital costs. No structural facilities are required. Post flood costs could be significant.

*Annual Cost to Operate/Maintain/Repair? (Increase, Decrease, or No Change)*

O&amp;M costs would not change

*Potential for Cost-Sharing?*

Potential for federal cost sharing based on existing federal purposes (flood management). Flood disaster assistance programs such as USDA and SBA.

*Emergency Response and Recovery Costs? (Increase, Decrease, or No Significant Change)*

Requires further evaluation to determine effects on emergency response and recovery costs. Could be significant. Federal program should be evaluated for cost comparison.

*Flood fighting? (Increase, Decrease, or No Significant Change)*

Requires further evaluation to determine effects on flood fighting

*Effect on Damage to Critical Public Infrastructure?*

Flooding rural area would require repair of such levees afterward.

*Effect on Floodplain and Economic Development?*

Potential to reduce new development in currently rural floodplains

*Effect on State Flood Responsibility? (Increase, Decrease, or No Significant Change)*

Requires further evaluation to determine effects; reduced state flood responsibility in urban areas may be offset by increased responsibility in rural areas accepting flood flows, depending on implementation

**Environmental Considerations:***Rehabilitate key physical processes and ecological functions?*

None

*Adverse Environmental Impact?*

None

*Permitting Considerations?*

None

*Opportunity to Reduce the Adverse Environmental Impacts Associated With Operation, Ongoing Maintenance, and Repairs of FM System?*

None

**Social Considerations:***Public Safety?*

Potential to directly improve public safety in urban areas; potential to indirectly improve public safety in rural areas accepting flood flows through increased understanding of flood risk (particularly in combination with management actions to address the effects of flooding when it does occur), but there may be a greater chance of flooding in rural areas.

*Potential to Provide Other Benefits (Water Supply, Recreation, or Open Space)?*

No direct effects, but potential to provide benefits associated with non-urban uses of floodplains (agriculture, open space, recreation, environmental restoration)

*Likelihood of Implementation (Politically, Institutionally, and Culturally Acceptable)?*

Agricultural communities have expressed willingness to discuss programs that would provide financial compensation for reduced level of protection; program would need to consider long-term economic impacts, appropriate means to support recovery of agriculture and other rural industries after floods occur

**Technical Considerations:***Redirected Hydraulic Impacts?*

None

*Residual Risk?*

No direct effect on residual risk; however, could indirectly reduce residual risks in rural areas if implemented in combination with other actions to mitigate the consequences of flooding once it occurs

*Climate Change Adaptability:*

None

**Urban, Small Community, and Non-Urban Considerations:**

May provide a means for compensating rural communities for flooding

**Regional Applicability:**

Applicable to all regions.

**Integration with Other Programs:**

**References:**

Agricultural Stewardship White Paper;